

# 4D Bioprinting Interface Mini™

Industry: Medical and Healthcare

## Summary

### Customer Challenge

During medical R&D, load cells used in medical device prototypes can detect pressure or tension within the printed construct. 4D printing for bioprinting utilizes 3D printing techniques to create functional structures. Forces and stresses need to be measured during the printing processes.

### Interface Solution

Interface's SuperSC S-Type Miniature Load Cell has a high force in a compact design, and can easily record forces of the printhead during printing process. To record and analyze the load cell's force data, utilize a data logger, such as Interface's 9330 Battery Powered High-Speed Data Logging Indicator with a USB port and software. Measuring forces can provide valuable data on the material's behavior during printing to identify swelling or degradation.

### Results

Interface's load cells offer valuable sensor devices for researchers developing 4D-printed medical devices. By measuring forces and stresses, they provide insights into the material's behavior, enabling the optimization of biocompatible implants with desired functionalities.

## Materials

- SuperSC S-Type Miniature Load Cell
- 9330 Battery Powered High-Speed Data Logging Indicator with supplied BlueDAQ software
- Customer 4D Bioprinter
- Customer computer

## How It Works

1. The SuperSC S-Type Miniature Load Cell is installed into the 4D Bioprinter's printhead. The miniature load cell will be able to monitor and regulate the force applied when extruding bio-ink material.
2. The load feedback is captured using the 9330 Battery Powered High Speed Data Logging Indicator through an SD card, or a another laptop directly with supplied BlueDAQ software.

